

**A HIGH VOLTAGE SEMICONDUCTOR DEVICE UTILIZING A DEEP TRENCH
STRUCTURE**

ABSTRACT

[0029] A semiconductor device includes a substrate having a source, a drain, and a gate between the source and the drain. Both the source and the drain include a first edge, and the gate includes a first portion. A first deep trench structure is situated under the first portion of the gate and proximate to the first edge of the source and the first edge of the drain.